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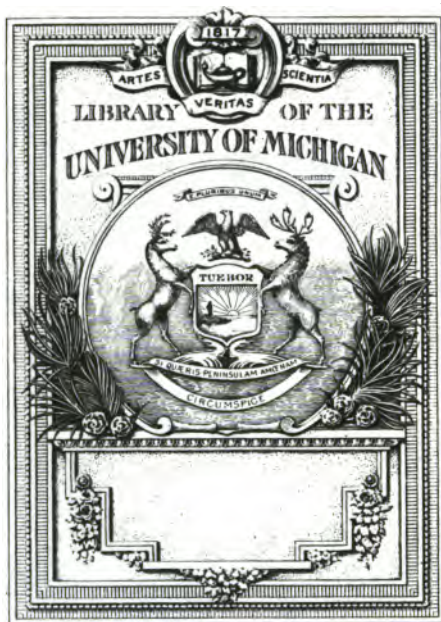
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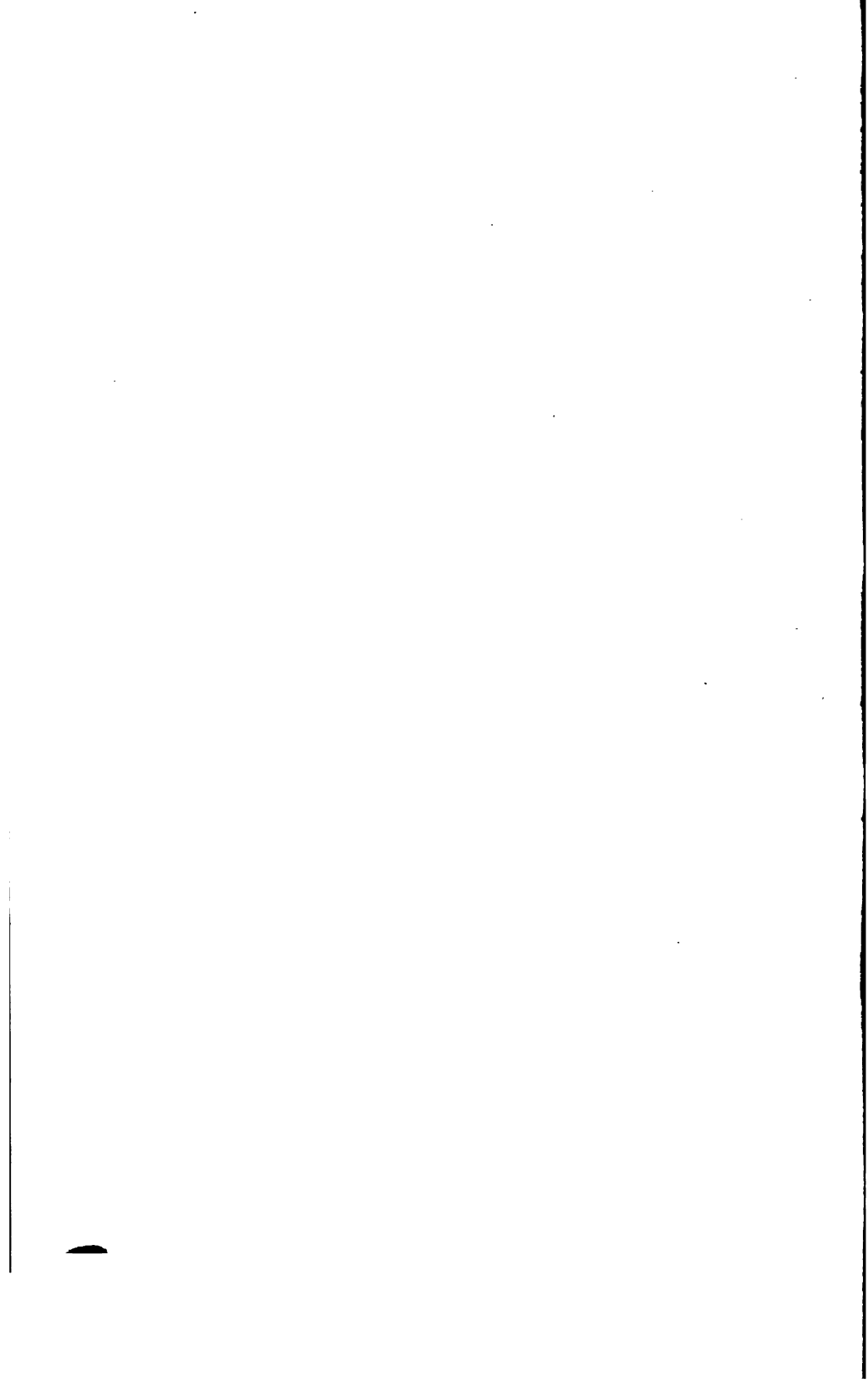
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A HISTORY

UNIVERSITY OF
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OF THE

WITH THE COMPLIMENT OF
A. R. CROOK,
SPRINGFIELD, ILL.

Illinois State
Museum of Natural History

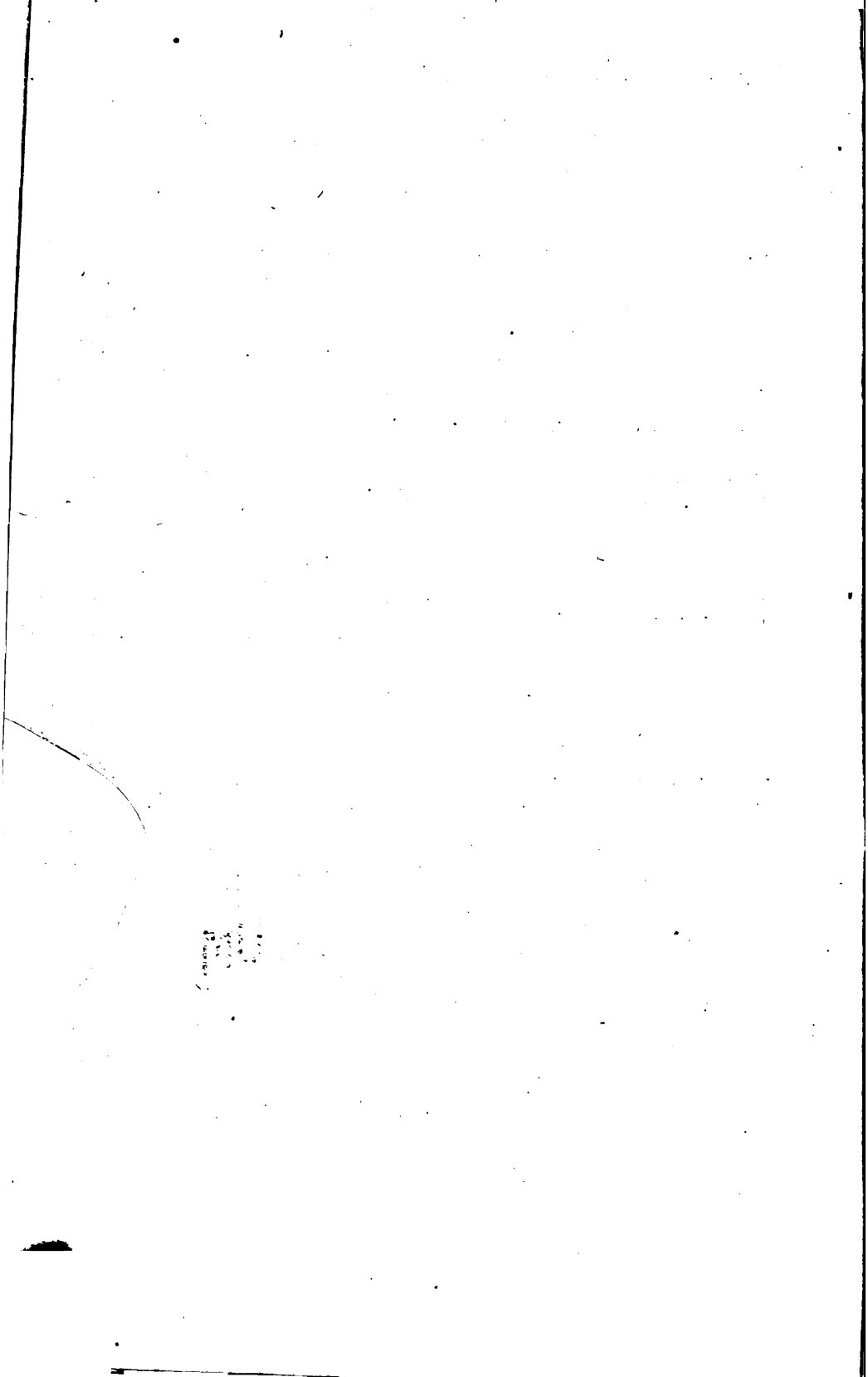
BY

A. R. Crook

JUNE, 1907



SPRINGFIELD, ILL.:
Phillips Bros., State Printers.
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MUSEUM OF NATURAL HISTORY.

BOARD OF TRUSTEES.

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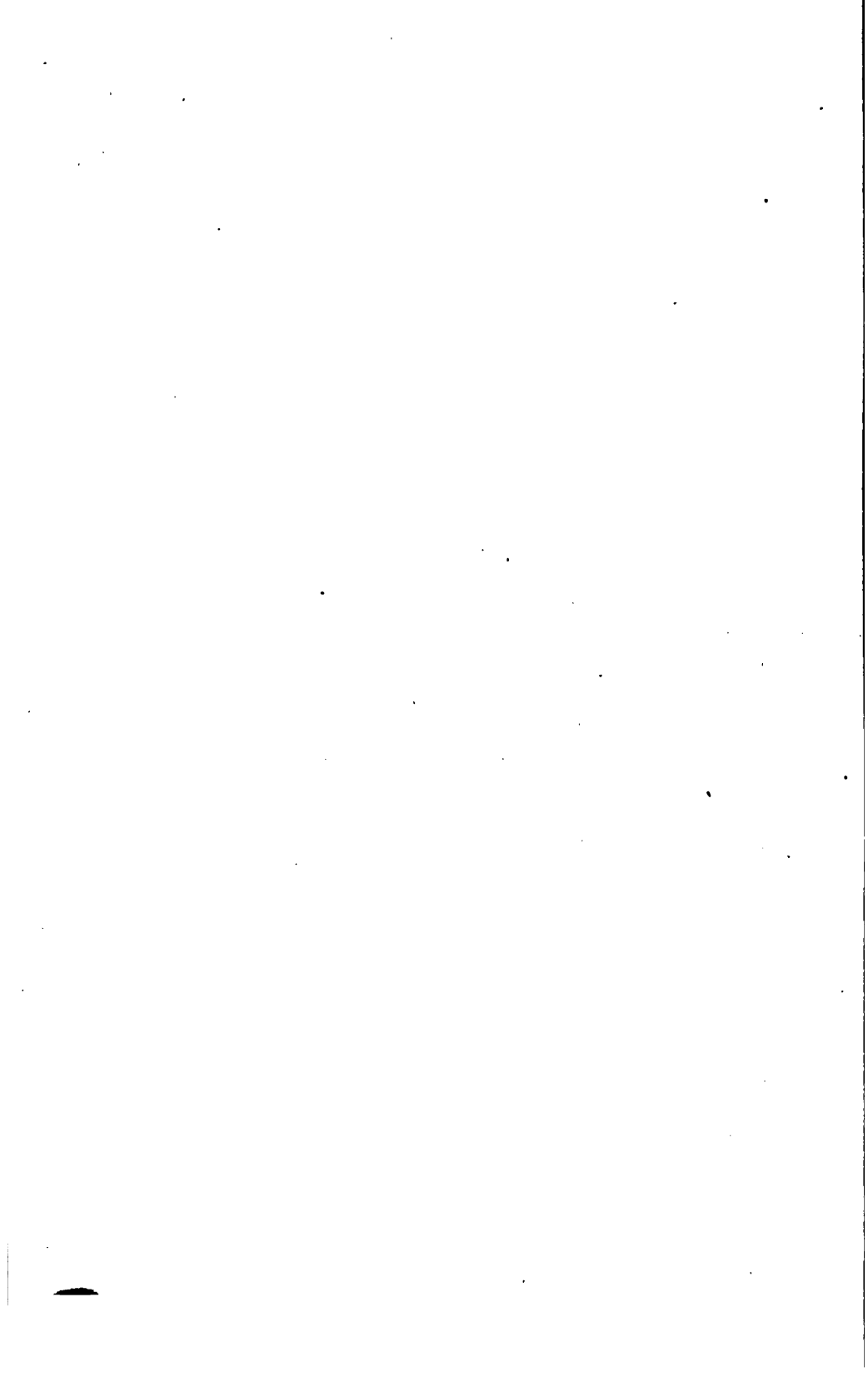
JAMES A. ROSE, *Secretary of State.*

FRANCIS G. BLAIR, *Superintendent of Public Instruction.*

A. R. CROOK, *Curator.*

MISS FANNIE FISHER, *Assistant Curator.*

Museum of Natural History
Newman E. J. 4-5-39



HISTORY OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY.

(A paper presented at the Pittsburgh Meeting of the American Association of Museums.)

PREFACE.

The work of bringing the following material together has not been done in the spirit of idle inquiry into things of small moment but for the purpose of learning of events which have had valuable results.

There is a dearth of records concerning the Museum. For long periods of years no catalogues were made. The catalogues that were begun within the last thirty years have not been made complete. But few curator's reports have ever been published.

The facts presented have been found in the "State Laws," "Geological Survey Reports," in two "Curator's Reports," in letters and from conversation with people acquainted with the institution.

If the history of a dozen or more like institutions in the country were written there would doubtless be presented facts which would be of valuable service to those institutions and render them more capable of efficiently carrying out the purpose of their foundation.

A. R. CROOK.

June 12, 1907.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support informed decision-making.

3. The third part of the document describes the role of the data analysis team and their responsibilities. It details the specific tasks and procedures involved in interpreting the collected data and providing meaningful insights to the management.

4. The fourth part of the document discusses the challenges and limitations of data analysis. It identifies common pitfalls and provides strategies to overcome them, ensuring that the data is used effectively and ethically.

5. The fifth part of the document concludes with a summary of the key findings and recommendations. It reiterates the importance of data-driven decision-making and provides actionable steps for the organization to improve its performance.





J. B. NORWOOD.

HISTORY OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY.

The existence of the Illinois State Museum of Natural History, may be said to begin with the enactment of a law in February, 1851, establishing a State Geological Survey. The 4th section of the law reads:

"It shall be the duty of said geologist to procure and preserve a full and entire suit of the different specimens found in the State and cause them to be delivered to the Secretary of State, who shall cause them to be properly arranged in a cabinet, and deposited in some apartment in, or convenient to, the capitol. Said suit shall be sufficiently large to furnish specimens to all institutions of learning within the State, empowered to confer degrees in the arts and sciences."*

Thus the history of the Museum covers a period of fifty-six years. At first it was conducted as a part of the geological survey, but for the last thirty years as an independent institution, although by the law of 1877, which established the Museum upon a separate basis, it was provided that the curator "perform the Acts which are or may be required by law of the State Geologist."†

Geology was the science that led to the establishment of the Museum and that caused its vigorous growth. The other sciences such as zoology, botany and archaeology have been secondary, chronologically and materially. But in later years their importance has increased.

The first man to be chosen as State Geologist, was a doctor of medicine, J. G. Norwood,‡ a native of Indiana, who was thought by the committee to meet the requirements of the law to the effect that the appointee be a "geologist of known integrity and practical skill."

Dr. Norwood had been assistant geologist under D. D. Owen, on a geological survey of Iowa, Wisconsin and Minnesota, and had just written a report which was his most extensive work either before or after that time. It covered 205 quarto pages, was illustrated with drawings and plates, and gave a description of the geology of a portion

* The clause providing for the delivery of the specimens to the Secretary of State, "who shall cause them to be properly arranged in a cabinet," seems never to have been carried out inasmuch as the first two State Geologists took charge of the materials and later curators were appointed.

† Laws of Illinois, 1877, section 5, p. 15.

‡ Dr. Norwood's son, Prof. C. J. Norwood, is at present State Geologist of Kentucky.

of Minnesota and of the western shores of Lake Superior. Previous to that time he had published a geological report on Chippewa Falls, Wisconsin (54 pages), and a description of an Echinoderm (3 pages).

In '55 he published three articles (34 pp.) on fossils and in '57 an "Abstract of Report on Illinois Coal," with geological map of Illinois. (106 pp.)

For full list see below.*

Norwood began his work July 29, 1851, and in the fall of the year employed two young men as assistants. One of them, Anthony Varner, died shortly after; but the other, A. H. Worthen, was connected with the work for many years, and at his death was one of the most widely known geologists in the State.

Norwood considered it to be of prime importance to assemble materials with which to work, and for this end began to form a museum. He says, "a rich and extensive collection of minerals and organic remains was made during that season (1851) and the ensuing winter was devoted to arranging them."†

Collecting was continued so vigorously in '52 that in '53, Norwood says (*ibid* p. 12): "The collection of rocks, minerals and organic remains made for the State is large and valuable. For the magnificent collection of fossils made during the survey, it is particularly indebted to Mr. Worthen, whose industry and zeal cannot be too highly praised."

In confirmation of his opinion that as far as carboniferous fossils are concerned the collection is 'unequaled in this country,' Norwood presents a letter‡ from D. D. Owen,§ dated New Harmony, Indiana, Jan. 19, 1853, in which Owen says:

"Respecting the collections made on the Illinois Survey, which I have inspected, I have to state that I consider it the finest collection ever made in the same length of time, on any survey that has come within my notice. * * * The collection is both rich in minerals and fossils; some of rare beauty and perfection * * * ."

* 1846. J. G. Norwood and D. D. Owen. Description of Echinoderm from St. Louis.

Am. Jour. Science (2) Vol. II, p. 225-8.

1847—and Owen, D. D. Researches among the Protozoic and Carboniferous rocks of Central Kentucky, etc.

Abstract Am. Jour. Science, 2d series, Vol. 5, pp. 268-269.

1848—and Owen, D. D. (Devonian fossils near the falls of the Ohio.)

Boston Soc. Nat. Hist. Proc. Vol. 2, p. 116.

Norwood, J. G. Report of a Geological Reconnaissance of Chippewa, Wisconsin; pp. 73-129, 30th Cong., 1st Sess., Senate Ex. Doc. No. 57, Washington.

1852. Geology of Minnesota and Shores of Lake Superior; Geological Survey of Wisconsin, Iowa and Minnesota, by D. D. Owen, pp. 213-418, plates, Philadelphia.

1855. J. G. Norwood and H. Pratten. Notice of Products in Western States.

Jour. Acad. Nat. Sci., Philadelphia. (2) Vol. III, pp. 5-22.

Notice of Chonetes.

Journal Acad. Nat. Sci., Philadelphia, Vol. I, p. 23-32.

Notice of Fossils from Carboniferous.

Jour. Acad. Nat. Sci., Philadelphia, Vol. III, pp. 71-77.

1857. Abstract of a report on Illinois coal, 93 pages, 5 plates, map; Chicago, Illinois Geol. Survey.

1860. Discovery of Permian Rocks at LaSalle, Ill.

St. Louis Acad. Sci. Trans., Vol. I, pp. 115-116.

1866. Norwood, J. G. Report on Rosiclare lead mines Geo. Sur. Ill., Vol. I,

pp. 366-372, plates, Chicago.

1874. Abstract of notes on Madison county. Geo. Sur. Missouri, report 1873-74,

Vol. I, pp. 371-379. Jefferson City.

† Norwood, "Report of Progress of the State Geological Survey," 1853, p. 6.

‡ *Ibid.*

§ D. D. Owen, the well known author of many geological papers; geologist on Indiana survey, 1837-45; on survey of Wis., Minn. and Iowa, 1848; State Geologist Ark., 1857.

The collection at this time was in New Harmony. The inappropriate-ness of such a location was soon realized and consequently in December, 1854, the specimens and all museum materials were packed in boxes to be sent by boat down the Wabash 40 miles to the Ohio, 120 miles down the Ohio to the Mississippi, 140 miles up the Mississippi to St. Louis, from thence by rail 100 miles to Springfield. But cold weather filled the rivers with ice and the museum did not reach Springfield till the following April, (1855). Even then it was given a cool reception since no place could be found for housing it. Finally it was stored in the Supreme Court room in the building which at that time served as State House. In a few months, in order to make room for the approaching session of the Court it was moved to the Senate Chamber where it was made accessible during the winter of '55 and '56. During the summer it was moved to the new arsenal building where new cases and drawers were provided.

But unfortunately the building was not heated and not only did the workers suffer but their reagents and ink froze and consequently during two or three months the work was given up entirely.

Such were the obstacles encountered by Dr. Norwood—the necessity of moving the museum three times, finally alighting in a place unfit for work; the newness of the field, there having been practically no geological work done previously in the State; and finally the handicap of small appropriations—from \$3,500 to \$5,500 per annum only being allowed for all expenses including salaries of geologist and two assistants, traveling and office expenses and publications. In the face of such obstacles even if the worker were energetic and competent there would be danger of criticism from people ignorant of the difficulties under which the work was done. After six years' work, there being some dissatisfaction with the results shown by the survey* a committee of nine legislators was appointed to investigate the work and reported† that Dr. Norwood deserved "great credit for the faithful attention which had been bestowed upon this branch of his duty" (the museum).

In reply to a request from the committee for his opinion of the museum, the State Geologist of Missouri, G. C. Swallow, wrote:‡

"The collection is very large and contains a great variety of minerals and fossils. * * * When properly arranged and set up in a suitable room, it cannot fail to be a source of pride and gratification to every citizen of Illinois * * *"

In spite of these commendations the Governor's message above quoted reads: "From the unsatisfactory progress made, however, and from the fact that nothing in relation to the survey had ever been published or even presented for publication (with the exception of a pamphlet of a hundred pages, the publication of which was obtained by the State officers after much effort and within the last eighteen months) it was deemed essential to reorganize the corps. This was done last spring (March 22, '58) and A. H. Worthen was placed at its head."

In behalf of Dr. Norwood it might be noted, however, that even his talented successor did not bring out his first report until 1866—that is

* See Governor Bissell's "Governor's Message," Journal of the Senate, 1859.

† Report of the Committee on the Geological Survey, Feb. 10, '57, p. 4.

‡ Ibid, p. 12.

after eight years in the office, having Norwood's seven year's collections to build upon and an especial appropriation of \$21,000 for printing, etc., as well as his own fourteen years' experience. This does not detract from the credit of Worthen but implies that Norwood was expected to make bricks without straw. Creditable work of that kind requires both time and money.

There is something of the irony of fate in other features of the change. The originators of the survey could not sufficiently emphasize the importance of having a survey which should be as they termed it, "practical." The geologist was to be a man of "practical skill," his reports were to be "purely economical," "strictly of an economical character," etc. As it happened Norwood wrote more often on palaeontology than upon anything else and Worthen's work was more than half palaeontological in quality and three-quarters so in scientific importance. The same is true of other curators. This was natural because at that time palaeontology offered the most attractive field for original work and it would have required a very high legislative fence to keep the workers out.

During the early years of Worthen's incumbency the museum remained in the arsenal. It was then moved to a room in the Masonic Hall. Concerning this Worthen says:* "These specimens, now comprising the largest and most valuable State cabinet in the west, are kept in a rented room * * * Permit me * * * to call your attention to the importance of securing a suitable fire-proof building for the reception and display of the specimens."

In spite of this suggestion the museum remained in that room and a fire did partly destroy the building. How much damage was done to the specimens it has not been possible for the writer to ascertain. But in 1875 Worthen writes:† "The large collection of geological specimens accumulated by the Survey, remains in the condition it was left by the fire in the Masonic Hall building, where it was formerly kept, no proper place having as yet been provided for its reception * * *"

From 1863 to 1870 Worthen in carrying out the provision of the law of 1851‡ requiring the distribution of typical collections of duplicates among educational institutions of the State, sent specimens to Prairie City Academy, Rockford Female Seminary, Monmouth College, Normal, Lombard, Wesleyan and Northwestern Universities. Letters to these institutions inquiring about the collections yielded information to the writer from Northwestern University only. The collection sent there, entered upon the record books of that institution September 8-15, 1871, by Prof. Oliver Marcy in characteristically accurate manner, consisted of 348 fossils and 52 rocks. If like materials were sent to all seven institutions the number would be 2800 specimens. Worthen found the work too large a drain upon his time.§

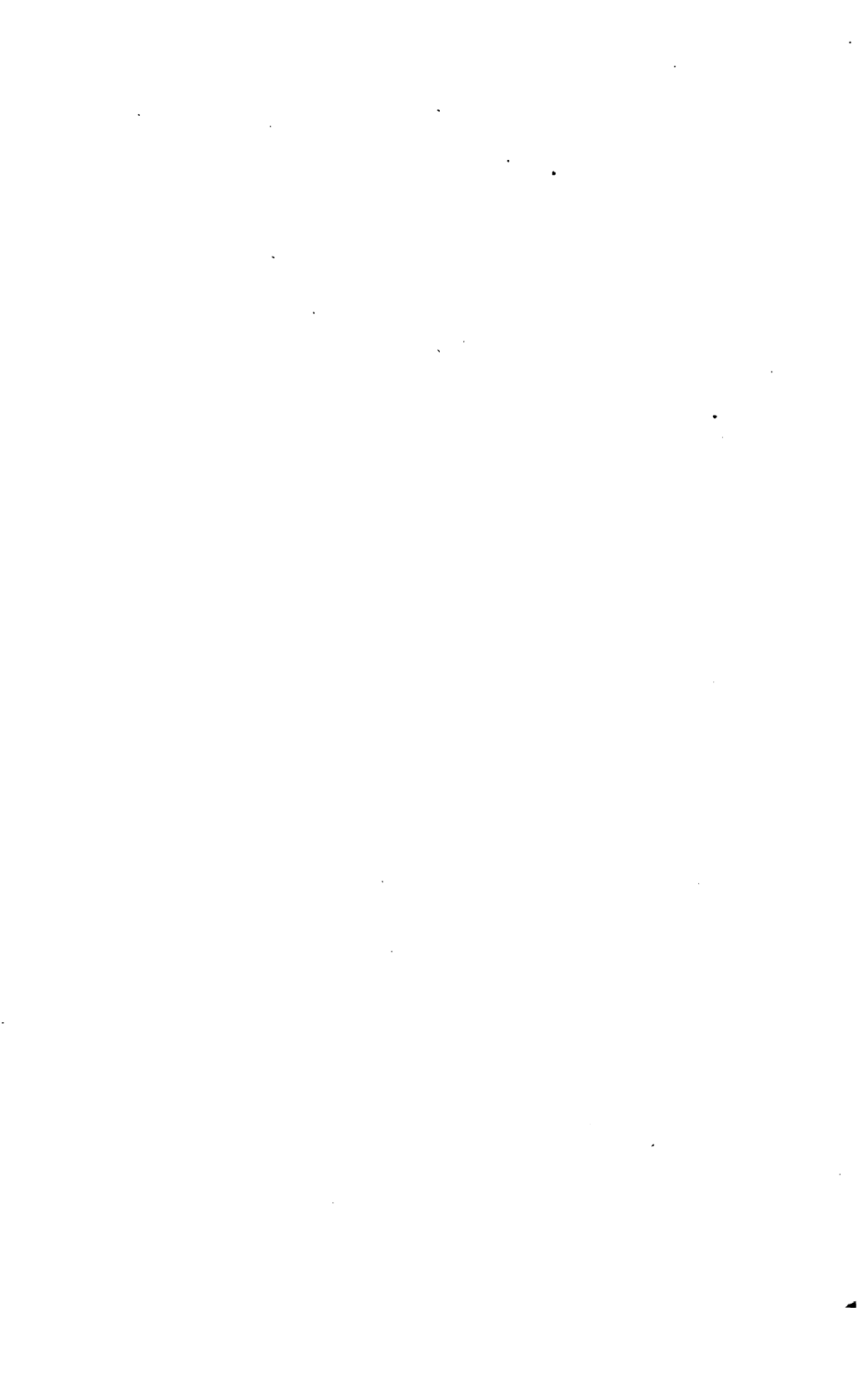
By the adoption of a new State Constitution in 1872 the appropria-

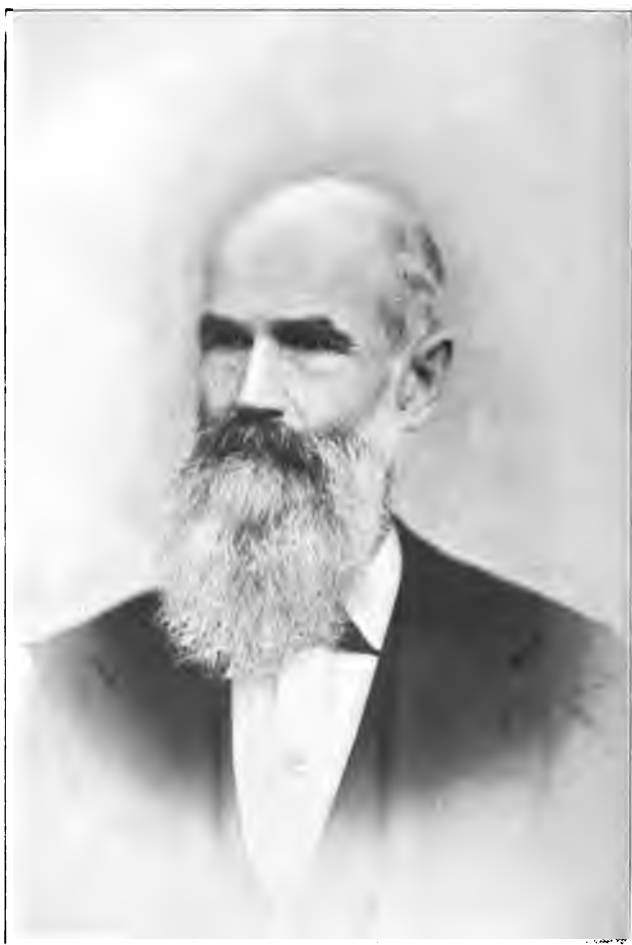
* Geo. Sur. of Ill., Vol. I, 1866, p. VII.

† Geol. Survey of Ill., Vol. VI, p. IV.

‡ Section 4.

§ Vol. I, p. XII.





A. H. WORTHEN.

tion for the State Survey was abolished,|| but by special appropriations the work was provided for till 1875 when it was discontinued, and the fine gentleman and scholar who, for a score of years had given it his time and strength was left without employment and without remuneration.

However, the museum materials were a visible quantity and even the opponents of "visionary science" could see that the museum should be cared for and, consequently the friends of such enlightenment and culture as geological work and natural history studies represent were able to provide for the establishment of a "State Historical Library and Natural History Museum." The law* established the institution, set aside certain rooms for it, named the trustees, stated the duties of curator and librarian, provided for moving specimens, for distribution of duplicates, for transfer of material from another museum, and made appropriations for carrying the requirements into effect.

For the first seven paragraphs of law see below. †

Most fittingly the man who for 17 years had been State Geologist was made Curator and was partially remunerated for the two years during which he was not paid by the State, even though continuing the work. ‡

In the meantime the museum materials had been moved from the Masonic Hall and stored in the basement of the new capitol building. For increasing the collections and moving \$2,500 was appropriated and the museum was transferred from the basement and established in creditable style in the west wing of the third floor of the State House. For the first time in its history it was fittingly housed.

An interesting circular§ "To the Scientists of Illinois" was sent out by Worthen and S. A. Forbes, director of the State Laboratory of Natural History, inviting support and coöperation of all people of the State interested in science in enlarging the museum.

* Laws of Ill., 1877, p. 15.

† Section 1. [Established.] *Be it enacted by the People of the State of Illinois, represented in the General Assembly, That there is hereby established at the capitol of the State a State Historical Library and Cabinet of Natural History, to be known as "The Illinois State Historical Library and Natural History Museum."*

2. [Rooms.] The rooms in the west wing of the State house known as the miscellaneous library rooms, are hereby set apart for the said library and museum established by this Act.

3. [Management—Trustees.] The Illinois State Historical Library and Natural History Museum shall be under the management of three trustees, consisting of the Governor, Secretary of State and Superintendent of Public Instruction, who shall have power to make all such rules and regulations, not inconsistent with law, as may be necessary for its management.

4. [Curator.] It shall be the duty of said trustees to appoint a curator, who shall be a person of competent scientific attainments, and who shall possess a practical knowledge of the science of geology.

5. [Librarian.] The curator shall act as librarian, and shall have the custody, superintendence and charge of all articles directed to be deposited in said library and museum, and shall also perform the acts which are or may be required by law of the State Geologist.

6. [Duty of Curator.] It shall be the duty of the said curator, as soon as the State house commissioners furnish the book cases and furniture designed for the galleries of said rooms, to select from the State Library all books and documents relating to the History of this State and place them in the new rooms as a nucleus for a State Historical Library.

7. [Specimens Removed.] It shall be the duty of the curator, as soon after this Act takes effect as is practicable, to have the collection of geological specimens accumulated in the progress of the geological survey of this State, and the other specimens hereinafter named, removed to said rooms and classified, labeled and arranged in such a manner as to be effectually preserved and at the same time open to the inspection of the public.

‡ But \$1,897.50 was voted.

§ Geol. Survey of Ill., Vol. VI, 1875, p. V.

§ The Ill. State Historical Library and Nat. Hist. Museum, 1877.

The most substantial assistance was rendered by the State Laboratory of Natural History, then at Normal. Prof. Forbes sent to the museum its chief zoological materials—alcoholic specimens of fishes and reptiles, artistic casts of Illinois fishes, mounted birds and mammals—a buffalo, deer, bear and smaller mammals.

In the early eighties* the curator selected "a complete series of carboniferous fossils for the State Museum of Natural History out of the great mass of material brought together in the progress of the geological survey of the State * * * ." And as the years passed the orderliness and value of the collections were increased by diligent work.

This improvement, however, availed but little, since in the last years of Prof. Worthen's life, against his protests and during his absence from Springfield, the museum was moved by ordinary laborers who had no more idea of the value of museum materials than Geronimo had of Shakespeare, and who threw things into inextricable confusion. (About 1887).

Of this move Dr. Josua Lindahl who was Prof. Worthen's successor writes:

" * * * You may, however, get some idea of its chaotic condition, when I tell you that the entire collections in the museum rooms had been moved in the last year of Professor Worthen's life, against his protests and in his absence from Springfield, from out of the upper floors down to the main floor of the Capitol by order of some higher authority who engaged a furniture moving concern to remove the whole museum, without the supervision of anybody who had the least idea of how scientific material should be handled. Only in exceptional cases were the labels fixed to the specimens, and none of these had any numbers written or painted on them. Labels and specimens were therefore shoveled into the drawers and showcases at haphazard, and by no means always so that the labels belonged to any specimens in the same drawer. In the basement the condition was, if possible, still worse. There was no closed room assigned to the storage of the vast amount of valuable material accumulated in the course of about 35 years, but it was piled up in an open portion of the basement, and workmen of various kinds had been using the pile as a dump for rubbish under which I would never have expected such a treasury of valuable material as was finally uncovered there and removed to a separate room with door and lock, which I secured after much arguing. The assistant told me that Professor Worthen felt so grieved over the wreck of collections in the museum rooms, that he could never attempt to remedy the havoc. His health was already broken, and after his death, some months later, I found the collections in such a condition as indicated. I devoted years of assiduous work to save what could be saved."

While curator, Worthen published no reports on the condition of the museum. The two bulletins which he brought out, Bulletin No. 1 (1882) and Bulletin No. 2 (1884) were descriptions of fossils. They were valuable contributions to the palæontology of Illinois. And he was able to publish Volume VII of the Geological Survey Report

* Bull. No. 2, Ill. State Mus. Nat. Hist., p. 3.

(1883). For full list of papers see below.* He was a field geologist rather than a museum man in the modern sense of the word and it was fortunate for his reputation that such was the case. The partial destruction of a museum could not diminish his fame. Up to the time of his death more than two hundred thousand dollars had been spent for all purposes of the survey since its beginning. A very small portion of that had been applied for strictly museum purposes and yet the results in that direction were gratifying.

Prof. Worthen died May 6, 1888.

An account of his life and work is given by Bliss and White in the last report of the first survey† and it may be sufficient here to mention a few facts only. He was born Oct. 18, 1813 at Bradford, Vermont, and received his education in the public schools and academy at that place. At twenty years of age he married and moved to Cumminsville, Ohio, now a suburb of Cincinnati, where for two years he taught school. Then in 1836 he became a merchant in Warsaw, Illinois. But his avocation was the study of geology and as the years passed his interest grew with the increasing size of his collections till finally science became his vocation as we have seen.

Beginning by assembling the goods for which Warsaw is famous and using them as a basis of exchange, and by industrious collecting he brought together one of the best cabinets of its kind owned by any

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- * 1857. On the occurrence of fish remains in the Carboniferous limestones of Illinois.
 Am. Assoc. Adv. Sci. Proc., Vol. 10, part 2, pp. 189-192.
 1858. Geology of the Des Moines Valley (and the southeastern counties).
 Geol. Surv. Iowa, Report by Hall and Whitney, Vol. 1, part 1, p. 147-258.
 1860. Remarks on the discovery of a terrestrial flora in the mountain limestones of Illinois.
 Am. Assoc. Adv. Sci., Proc., Vol. 13, pp. 312-313.
 1860. Review of some points in B. F. Shumard's report on the geology of Ste. Genevieve county, Mo.
 St. Louis Acad. Sci. Trans., Vol. 1, pp. 696-698.
 1862. Remarks on the age of the so-called "Leclare limestone" and "Onondaga salt group" of the Iowa report.
 Am. Jour. Sci., 2d series, Vol. 33, pp. 46-48.
 1866. Stratigraphical geology, tertiary deposits, and coal measures. (Sub-carboniferous limestone series, Devonian and Silurian series.)
 Geol. Surv. Illinois, Vol. 1, pp. 40-152, plate 5, Chicago.
 Republished in *Economical Geol. Ill.*, Vol. 1, pp. 31-117, Springfield, 1882.
 Abstracts Neuss Jahrbuch, 1868, pp. 138-145; Am. Jour. Sci., 2d series, Vol. 43, pp. 110-111, 258, 1867.
 1866. Geology of Randolph (St. Clair, Madison and Hancock counties.)
 Geol. Surv. Illinois, Vol. 1, pp. 278-349, Chicago, 1866.
 Republished in *Economical Geology of Illinois*, Vol. 1, pp. 210-290, Springfield, 1882.
 1866. Physical features, general principles, and surface geology.
 Geol. Surv. Illinois, Vol. 1, pp. 1-39, Chicago. Republished in *Economical Geology of Illinois*, Vol. 1, pp. 1-30, Springfield, 1882.
 1866. Remarks on the occurrence of fossil fishes in the Illinois strata.
 Geol. Surv. Illinois, Vol. 2, paleontology, pp. 11-16, Chicago.
 Abstract Am. Jour. Sci., 2d series, Vol. 43, p. 396, 1867.
 1866. And Englemann, Henry, Hardin county.
 Geol. Surv. Illinois, Vol. 1, pp. 350-366, 372-375, map, Chicago.
 Republished in *Economical Geology of Illinois*, Vol. 1, pp. 291-319, Springfield, 1882.
 1868. Coal measures and lower carboniferous limestones.
 Geol. Surv. Illinois, Vol. 3, pp. 1-19, Chicago.
 Abstract Am. Nat., Vol. 3, p. 44, 1870.
 1868. Coal measures of Illinois.
 Read to Am. Assoc. Adv. Sci., 1867.
 Abstracts Am. Nat., Vol. 1, pp. 619-620, 1868.
 Canadian Nat., new series, Vol. 3, p. 295, 1868.
 1868. Jersey (Greene and Scott counties).
 Geol. Surv. Illinois, Vol. 3, pp. 104-144, plates, Chicago, 1868.
 Reprinted in *Economical Geology of Illinois*, Vol. 2, pp. 24-71, Springfield, 1882.
 1868. And Englemann, Henry—Alexander (Union, Jackson and Perry) counties.
 Geol. Surv. Illinois, Vol. 3, pp. 20-103, plate, Chicago.

private person in the west. He was connected with the museum longer than any of the other curators have been and brought to it its most unique specimens not by purchase, but by his own indefatigable labor.

The excellence of his scientific work was recognized by fellow workers at home and abroad. He was a gentleman of the highest type, both in his private and public life.

E. O. Ulrich,† who was intimately acquainted with him, says concerning his character: "Its salient features were: great love for scientific truth and justice, simplicity, unbounded affability, unswerving integrity coupled with an unpretentious yet strong desire to accomplish a useful career. His generosity and charity scarce knew bounds, while in his public and private life his frank and sympathetic nature and unassuming yet dignified demeanor won the esteem of all with whom he came in contact."

Shortly after Prof. Worthen's death a very fitting appointment was made in that of Prof. Josua Lindahl, Ph. D., to the curatorship on June 9, 1888. The appointee, the son of an eminent Swedish minister, born January 1, 1844, at Kongsbacka, is a graduate of the University of Lund where he pursued post graduate studies and taught for seven years. Before coming to this county he was assistant in the Royal Museum of Natural History at Stockholm. He was a member of a

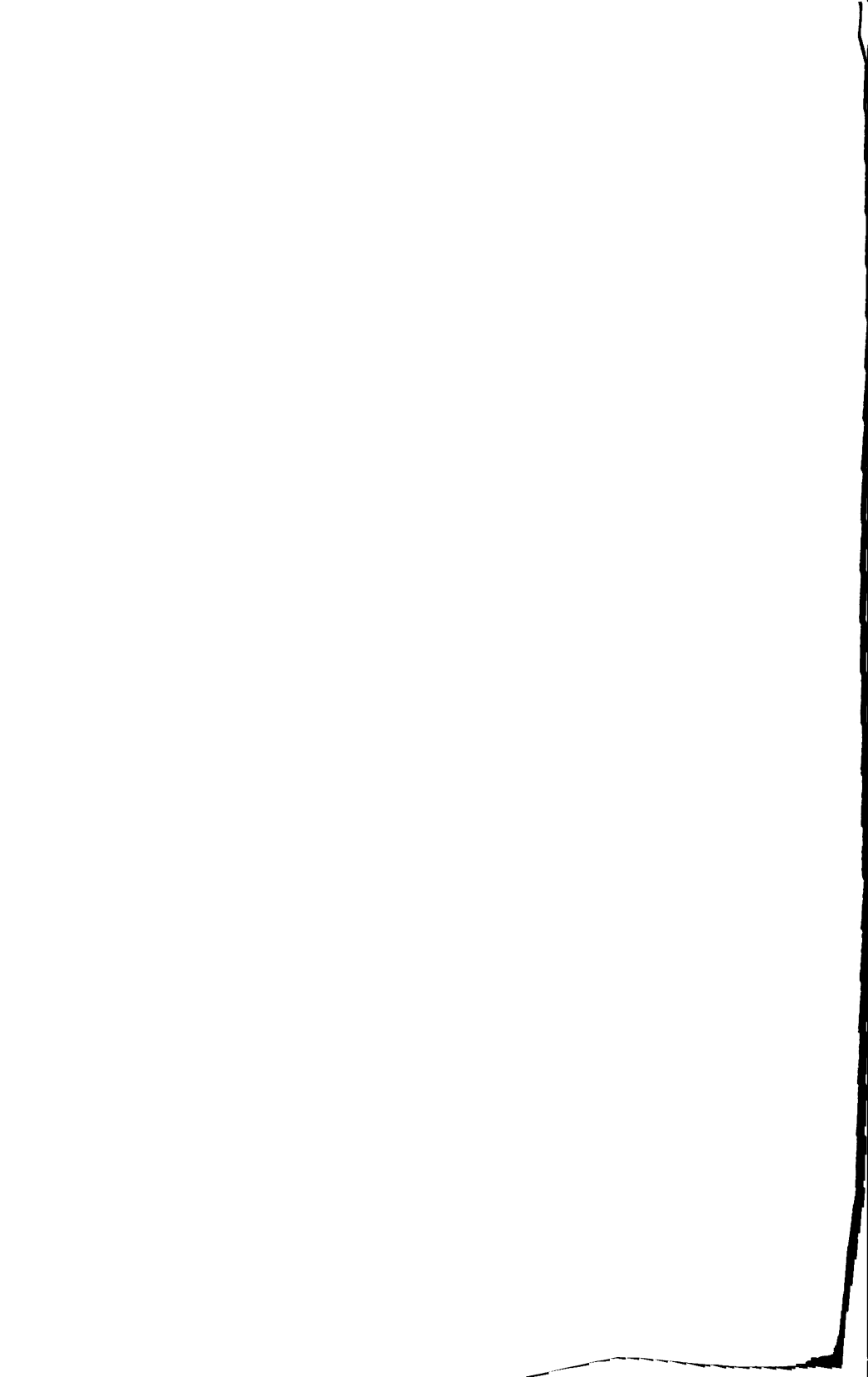
Republished in *Economical Geology of Illinois*, Vol. 1, pp. 291-319, Springfield, 1882.

- Geol. Surv. Illinois, Vol. 4, geology and palæontology, pp. 345-346, Chicago.
 1870. Calhoun (Pike, Adams, Brown, Schuyler and Fulton) counties.
 Geol. Surv. Illinois, Vol. 4, geology and palæontology, pp. 1-110, Chicago, 1870.
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 † Appendix of Vol. VIII, Geol. Survey of Ill., p. 3-37.
 ‡ Geol. Survey of Ills., vol. 8, 1890, p. 15.



JOSUA LINDAHL.

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number of scientific expeditions—dredging expeditions in the Mediterranean and in the Atlantic—and zoölogist on an expedition sent to Greenland by the Swedish government. As Secretary of the Royal Swedish Commission at an international Geographical Congress he visited Paris and later, during the Centennial, Philadelphia, and was attracted by the country. He was knighted by King Oscar of Sweden for services in his native country. For the ten years immediately preceding his connection with this museum, he had been Professor of Natural Science at Augustana College where he had built up a fine Natural History Museum.

As an ofttime contributor to Swedish and American magazines, he is well known and also for his translation into Swedish of Brehm's celebrated three volumed "Illustriertes Thierleben."

His active interest in science is further indicated as was Prof. Worthen's, by membership in numerous scientific societies. Until quite recently he has been Director of the Cincinnati Society of Natural History.

In 1889 the State Historical Library was made a separate institution. Elegant quarters have been assigned to it and it has been enabled to reach a size and importance greatly to be commended.

For partial list of Lindahl's papers see below:*

No better man has been connected with the Museum than Lindahl. His first work upon assuming the curatorship was to put the museum in order. This proved to be an enormous task since the materials had never before been in such confusion and fortunately at no subsequent time has such disorder reigned.

While engaged in this work he found time to edit Volume VIII of the Geological Survey Report, which Worthen had prepared for publication but was prevented from completing on account of his death.

Preparations for the World's Columbian Exposition were being made throughout the State and Lindahl was instructed to collect and place on exhibition in the Illinois State Building, materials that would properly represent the geology of the State. He began with vigor to bring together illustrations of the stratigraphy, the palæontology and economic geology of the State and with the aid of several able assistants, Profs. J. A. Udden, W. F. Nicholson, etc., soon had a very creditable exhibition. Unfortunately because of a change of the political party in power in the State, he was removed while in the midst of his work.

Lindahl, with the true spirit of the curator, at all times showed himself to be a care taker and preserver of the materials and interests of the Museum. If his spirit had always prevailed the State Museum would at this time be much richer in materials than it is.

* 1886. List of the geological formations of Spitzbergen.

Am. Nat., vol. 20, pp. 451-452.

1888. Dr. N. O. Holst's studies in glacial geology.

Am. Nat., vol. 22, pp. 589-598, 705-713.

1889. Report of the State of Illinois Historical Library and Natural History Museum, Springfield.

1891. Description of a skull of *Megalonyx leidyi*, n. sp., Springfield, Ill. Read before the American Philosophical Society, January 2, 1891.

1893. Geological Report.

Report Illinois Board World's Fair Commissioners.

His successor, William F. E. Gurley, was appointed in July, 1893. Mr. Gurley was born in Oswego, New York, June 5, 1854. His parents came to Danville, Ill., in '65, and since that time he has considered that place his home. He was a student at Cornell University, and later became a prospector in Colorado, and for five years was city engineer at Danville.

He early acquired a taste for geology and began to make a palæontological collection and library.

As to his tastes and his work while connected with the museum, Mr. Gurley says:

"From the moment I first became interested in the subject of geology, I set to work accumulating a palæontological collection and library and it was my ambition to place myself in a position financially where I could 'settle down' and devote myself entirely to this subject.

When a child of six years, I was rendered totally blind through sickness and, after a period of several months partly recovered my sight. I never fully recovered and during my entire life have been subjected to much inconvenience from this source.

For the most part my palæontological work was done in collaboration with Samuel A. Miller of Cincinnati, Ohio, and may be found in the various 'bulletins' issued when I was curator.

During the last year I was curator, my eyes failed materially to such an extent that it became impossible for me to read common newspaper 'print' without the aid of a magnifying glass which was extremely tedious and very unsatisfactory. In due course of time I became convinced that the failure of my sight was permanent and I was forced to lay aside all ambitions of a scientific nature—it being impossible for me to attempt anything of a 'technical' sort."

Mr. Gurley is a charter member of the Geological Society of America and a fellow of a number of scientific societies at home and abroad. At present he is curator of palæontology in the University of Chicago.

The bulletins referred to in his letter are Bulletins 3-12 of the Museum of Natural History. They deal with the same line of work that claimed the chief attention of Norwood and Worthen and show that in spite of the demand for "purely practical" work made by the Legislature, work chiefly of scientific nature was produced.

For list of bulletins see below.*

Mr. Gurley published no Museum reports.

During his incumbency, much against his wishes, the museum made its customary move, this time from the first to the third floor of the State House.

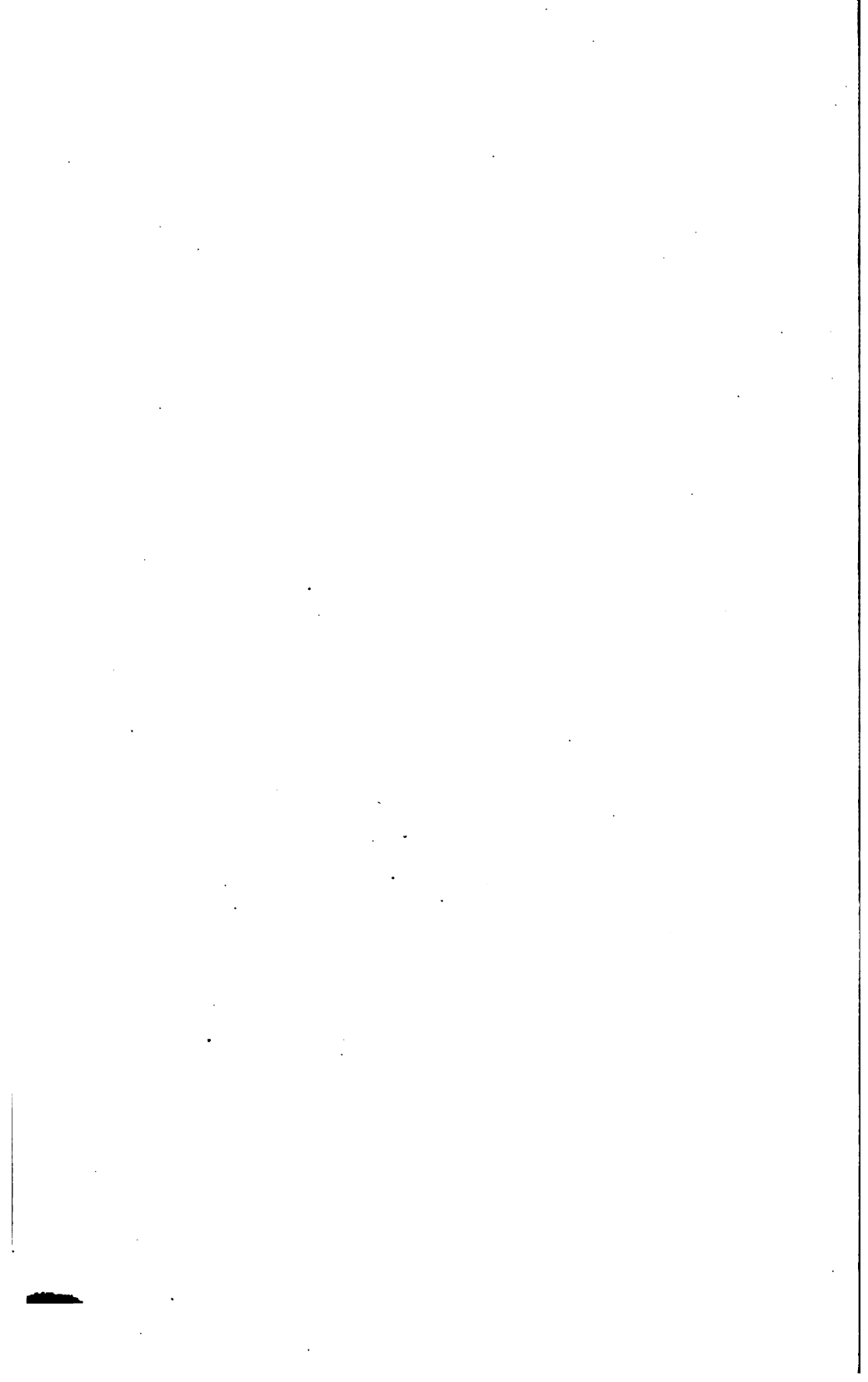
It may have been from the point of view of the protection of the specimens wise and desirable to donate to the University of Illinois the materials brought together by Curator Lindahl for the World's Fair. But from the point of view of the museum it was detrimental. The transfer from the first to the third floor was a step backward, as

* Bulletins of Illinois State Museum of Natural History, by S. A. Miller and Wm. F. E. Gurley:

1893.	Bulletin No. 3.	New species of Invertebrates from the Palæozoic.
1894.	Bulletin No. 4.	New species of Upper Devonian and Niagara Crinoids.
1894.	Bulletin No. 5.	New genera—Species of Echinodermata.
1895.	Bulletin No. 6.	New species of Palæozoic Echinodermata.
1895.	Bulletin No. 7.	New Species of Palæozoic Fossils.
1896.	Bulletin No. 8.	New Species Fossils from the Palæozoic.
1896.	Bulletin No. 9.	New Species of Crinoids.
1896.	Bulletin No. 10.	New Species of Echinodermata and New Crustacean.
1896.	Bulletin No. 11.	New Species of Palæozoic Invertebrates.
1897.	Bulletin No. 12.	New Species of Crinoids, Cephalopods and other Palæozoic Fossils.



WM. F. E. GURLEY.



the new quarters were more contracted and were partly used as committee rooms by the Legislature.

The next curator was Mr. C. H. Crantz, who was appointed in 1897 owing to a change in State politics. He is a native of Sweden and at the time of his appointment was in business in Chicago.

In 1903 he published a report of the museum.

The move which came in his incumbency saw the transfer of the collections from the State House to the arsenal. A few more square feet of space were gained, but at the expense of dignity and beauty in the surroundings. The curator was able to bring all the zoological specimens under glass. But the only arrangement possible is that allowed where every square inch of space must be utilized. Of his term Mr. Crantz writes:

"When I began my term as curator the Museum was located on the third floor of the State Capitol, in one large and two small rooms, poorly lighted and very cramped for space. These rooms, as well as the office room had all been used by the Legislature as caucus and committee rooms, and during the sessions I had to give up my office, desk room excepted, and one of the small rooms. The collection had shortly before been moved upstairs from large and well lighted rooms on the first floor, much against the wishes of the then curator, Mr. Gurley.

The result of the smaller space allotted caused a terrible crowding of the exhibits, on which it was almost impossible to improve, and absolutely prevented any expanding.

The duties of the curator up to the recent establishment of the new Geological Survey included those of the former State Geologist, in so far as possible to perform them, without any appropriation for maintenance of field work. The correspondence of the office was principally on questions relating to the geology of the State and the occurrence of coal, oil, natural gas and clays—the attending to which took considerable time.

The care and arranging of the exhibits kept myself and assistant busy. The collections of birds and mammals, and of insects needed constant looking after to prevent damages.

A number of old, poorly mounted specimens were weeded out and replaced by new and properly mounted ones. Many species new to the collections were acquired and placed on exhibit.

A collection of birds, eggs and nests was started with a small nucleus of old specimens, and has grown to a very good one and representative of most Illinois species—including several rare ones.

The fossils and minerals were repeatedly gone over and cleaned. New labels have been written for every specimen on exhibit—a no mean task in itself. As said above, our quarters in the Capitol were so crowded that when the new Arsenal was erected and it was decided to move the museum there, we flattered ourselves that we would now get much better space, but were disappointed in this, and only a few hundred square feet of additional floor space was available for the museum—with no space for a workroom.

Under many difficulties the removal was made, taking fully six months to complete the packing of the exhibits, taking down and rebuilding and altering the cases, and arranging the exhibits.

The small space prevented much improvement in the arrangements, but the room is better lighted and the exhibits more accessible than formerly—although to do full justice to the needs of the museum at least double the space should be allowed.

In my efforts to maintain and improve on the usefulness of the museum I always had the most hearty good will and coöperation of the Board of Trustees and office staff."

In 1905 a new geological survey was organized under excellent provisions and leadership. Already it has produced valuable results. The only formal relation between it and the museum is the clause* which reads as follows:

"All materials collected, after having served the purposes of the bureau, shall be distributed by the director to the educational institutions of the State in such manner as the commissioners may determine to be of the greatest advantage to the educational interests of the State, or, if deemed advisable the whole or part of such material may be placed on permanent exhibition in the State Museum of Natural History at Springfield, or in the museums of the University of Illinois. * * * "The whole or part of such material may be placed on permanent exhibition in the State Museum of Natural History at Springfield * * * ."

The present curator was appointed Sept. 15, 1906.

Miss Fanny Fisher, who has been connected with the museum since 1881, with the exception of three years (1893-1896), has been acquainted with all the curators except Dr. Norwood. Concerning them and their work she writes:

"My first acquaintance with Prof. A. H. Worthen, that able scientist and grand old man, began upon my entering the Museum as assistant. Briefly, I will touch upon his personal characteristics. He was a man of the strictest integrity, one who had risen through dauntless energy, conquering by his indomitable will and personal exertions all those difficulties, so numerous in the early pioneer days. His one great precept towards mankind was to 'do unto others as you would have others do unto you.' And this precept he followed strictly, as far as my own observations went.

"As a scientist he had won for himself an enviable reputation as a geologist and palaeontologist. The State of Illinois has a collection in its Museum which will stand for generations a dumb proof of his zeal and interest in his work. The disinterested or thoughtless would scarcely appreciate the many years of labor, the difficulties conquered and left far behind, this collection stands for.

Of his eight volumes of the Geological Survey of Illinois, the last one, Volume VIII, was ready for the printer when his death occurred. It was printed under the direction of his successor, Dr. Josua Lindahl.

Dr. Lindahl was and is a man of many scientific attainments and a linguist of considerable ability. He had many ambitions for the Museum and the work connected with his office here which he was unable to carry out because of lack of funds, and also lack of scientific interest from those in power. However Dr. Lindahl prepared from the Museum collections a magnificent display for the World's Columbian Exposition at Chicago. At this exposition this display won a medal and a diploma. Meantime the State administration became Democratic, and Dr. Lindahl was removed from office in June of that year and Wm. F. E. Gurley was appointed in his place. I, too, lost my position early in the fall of that same year, and hence know nothing concerning the Museum during the ensuing three years in which the Democrats were in power.

At the end of this time, the Republicans again won a victory at the polls, and just after the inauguration of John R. Tanner, I was re-appointed to my old position as assistant curator of this museum.

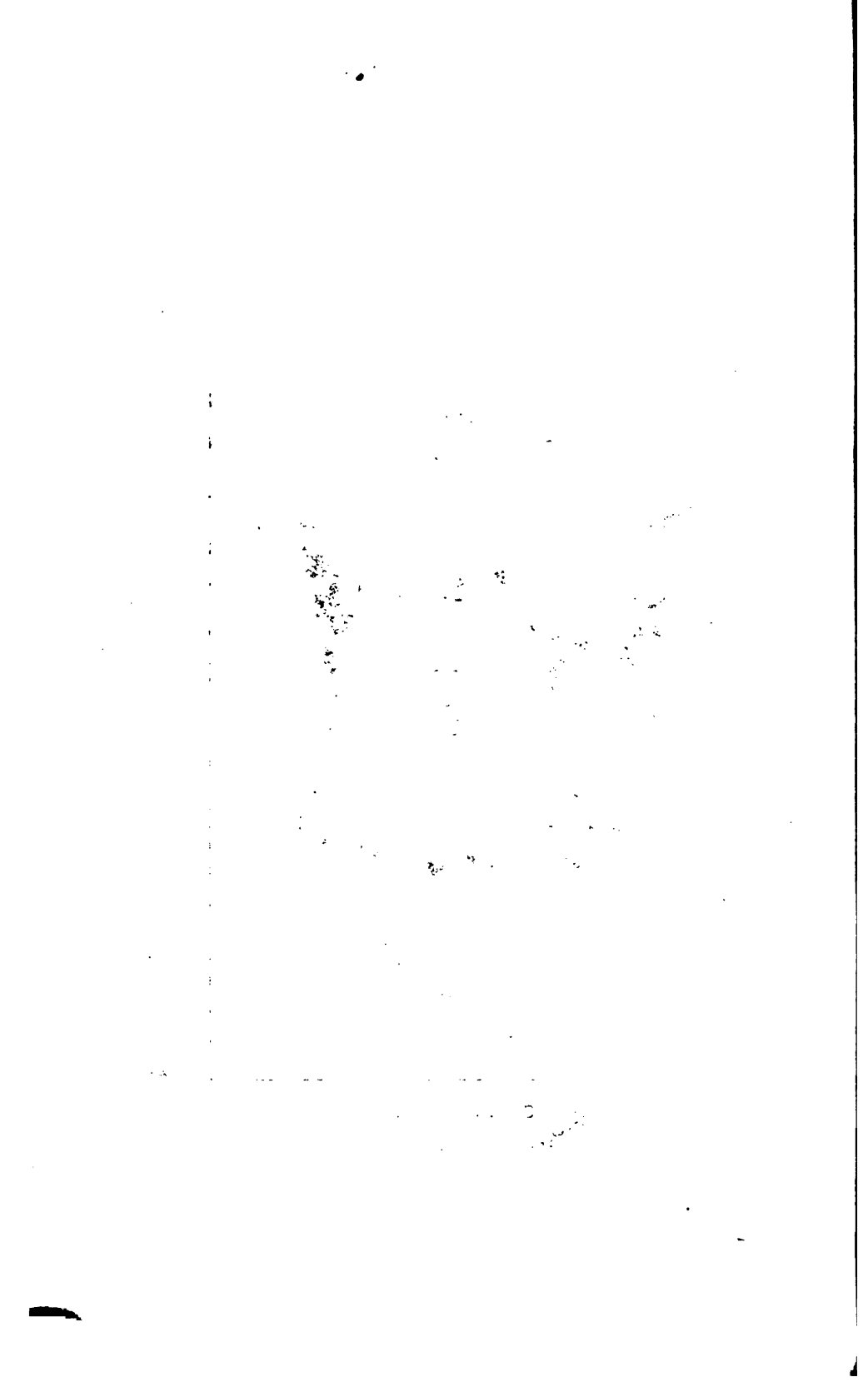
Dr. C. H. Crantz was appointed curator. From this time no scientific work was done here. The same old story of lack of funds necessitated giving up all efforts towards progress scientifically. In lieu of this, the policy of the Museum has been purely a practical one. Keeping everything in good order,† the specimens clean and plainly labeled and attending to a numerous correspondence such as a department of this kind would have, required considerable time to accomplish. From a practical standpoint Mr. Crantz has made an ideal curator, and attended strictly to his duties at all times. I would add

* Laws of Illinois, 1905, p. 31, section 8.

† B. F. Sheplor has been helper and janitor since 1901—Ed.



C. H. CRANTZ.



that he is a remarkable linguist and, at various times proved of great service to many of the State officers in translating numerous foreign communications of importance.

Practically, the Museum has been of almost inestimable value to thousands of school children, (who have come here to study, accompanied by their teachers), as well as to many thousand visitors, many of them excursionists from distant points in the State, all of whom made this place their Mecca. And therefore, practically, it has served a great purpose. Scientifically, it could become a great institution, for the material is here, and the *will* to broaden, but alas! the financial wherewith is absolutely wanting. For, build castles as one may, the most important factor in the march of progress; (when progress means scientific research)—is plain, every-day money. Without money, one's castles must fall and stifled ambitions must, perforce, lie buried for a time."

CONCLUSION.

In reviewing the history of the museum a number of facts come prominently to view:

First, men of scientific instincts and activity have had the work of the museum in charge. They have added to scientific knowledge generally and have built up the museum in particular.

Second, as a result of their abundant labors much valuable material has been brought together.

Third, the museum does not begin to contain the collections that it should contain. It has suffered by fire. It has been moved nine times without having reached a location in any degree suitable, either as far as space, light, dignity or beauty are concerned. Money that should have been spent for materials has been used in moving.

Two of the curators, Worthen and Gurley, were ardent collectors before coming to their office and during their incumbency continued collecting for themselves. At the time of their leaving the curatorship they were criticized because of the size and value of their private collections.

It was urged that their energies as collectors should have been turned wholly toward building up the State Museum, and that if such had been the case the museum would have been much richer. On the other hand, it was said that the State was an unjust employer, failing for two years to pay one curator, and turning off the other without just cause, and that the State neither properly prized nor cared for the valuable materials which were brought together as the result of painstaking and arduous labor.

However, by some arrangement those materials should have been saved for the State, and the most appropriate place for them is the State Museum. There should be a law, whether written or unwritten, that no curator should collect for himself. It might work hardship for the curator, but it would be for the proper advantage of the institution which he served.

The museum has had a long and eventful history. It has filled a place of usefulness, but the opportunity which lies before it is far greater than that which is past.

To use the opportunity and meet the obligations which are upon it will require the interest and help of all those who are in any degree responsible for its conduct.

To advance in utility and perfection it needs the hearty sympathy and support of the legislative committees which provide its finances. It needs the coöperation and careful thought of its trustees. When these are granted, the museum staff, by skilful and diligent application, may be able to produce a museum ever more nearly approximating an institution which should fittingly represent the great and prosperous State of Illinois.

The museum should preserve the vanishing types of animals and plants of the State. It should represent the history of the State as far as Nature is concerned. It should be a place of entertainment of the highest class.

Throughout the United States the value of museums as places of entertainment and education is being more appreciated. It is coming to be realized that museums supplement schools and libraries. They often appeal first to people who are not influenced by other sources. They are places of amusement of the highest type, and the public deserve amusement. They are a means of education, inasmuch as they show the world in which we live as it is, and have a sane and wholesome influence on the public.

The museum field is a great and valuable field. As the State preserves her natural history treasures for the schools, she can at the same time afford every one, learned and humble, rich and poor, such a view of their environment as will enrich their intellectual equipment.

That the number of friends of the museum among legislators and executives may increase is a consummation devoutly to be wished.

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